



**San Francisco**  
**Water Power Sewer**

Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor  
San Francisco, CA 94102  
T 415.554.3155  
F 415.554.3161  
TTY 415.554.3488

July 25, 2017

Angela Calvillo  
Clerk of the Board of Supervisors  
1 Dr. Carlton B. Goodlett Place  
City Hall, Room 244  
San Francisco, Ca. 94102-4689

Dear Ms. Calvillo:

Please see the enclosed amended Certificates as required under 2002 Proposition E and related to the following bond authorizing legislation:

- Water Enterprise File No 160472 and Board of Supervisors Ordinance No 112-16.

Should you have any questions, please feel free to contact me.

Best regards,

Richard Morales  
Debt Manager  
Tel: 415-551-2973

**Edwin M. Lee**  
Mayor

**Anson Moran**  
President

**Ike Kwon**  
Vice President

**Ann Moller Caen**  
Commissioner

**Francesca Vietor**  
Commissioner

**Vince Courtney**  
Commissioner

**Harlan L. Kelly, Jr.**  
General Manager



**Certificate of the Consulting Engineers**  
**in connection with Section 8B.124 of the Charter of the City and County of San Francisco, and the**  
**Indenture of the San Francisco Public Utilities Commission (SFPUC), and Board of Supervisors**  
**Ordinances authorizing the Sale of Water Revenue Bonds and/or Other Forms of Indebtedness,**  
**including Commercial Paper**

**Introduction**

This Certificate has been prepared by AECOM Technical Services, Inc. (AECOM) at the request of the San Francisco Public Utilities Commission (SFPUC) in support of the SFPUC Water Revenue Bonds and/or Commercial Paper Issuance, as required under Section 8B.124 (a) (i) and (ii) of the San Francisco Charter and Section 3.06 (c)(1)(B) of that certain Amended and Restated Indenture of Trust, dated August 1, 2002, as amended and restated, by and between the SFPUC and U.S. Bank National Association, as trustee thereunder (the "Indenture"). AECOM is an independent engineering firm retained by the SFPUC to provide the certification. This Certificate is being delivered in anticipation of the issuance of Commercial Paper Notes (the "Notes") or Water Revenue Bonds (the "Bonds") by the SFPUC.

Proposition E requires certification by an independent consulting engineer that (i) the Projects to be financed with proceeds of bonds under Proposition E, including the prioritization, scheduling and cost estimates thereof, meet generally accepted utility standards and (ii) that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements, including debt service on the bonds to be issued, and estimated repair and replacement costs.

[Section 3.06(c)(1)(B) of the Indenture requires a Certificate of a Consulting Engineer (as defined under the Indenture) setting forth (i) the estimated completion date for the portion of the Project for which the series of Bonds is being issued and for any other uncompleted portion of the Project, and (ii) an estimate of the cost construction of such Project and any other uncompleted portion of the Project.]

**Background**

The SFPUC owns and operates a municipal water supply, storage and distribution system (the "Water Enterprise") that provides drinking water to retail customers in the City and certain retail customers outside of the City and to wholesale customers in three other San Francisco Bay Area counties (i.e. Alameda, San Mateo and Santa Clara). Approximately 2.5 million customers rely on the SFPUC to meet their daily water needs. The Water Enterprise consists of water treatment and distribution facilities located outside of the City and water treatment and distribution facilities located inside the City.

The responsibilities of the SFPUC's Water Enterprise are to manage, operate, and maintain San Francisco's water collection and distribution system.

**Certification**

The findings and conclusions in this Certificate are based on AECOM's review of the following references and data (herein referred to as the "Documents"):

- Water System Improvement Program, Quarterly Report, Regional Projects, Q2 FY 2015-2016

- Water System Improvement Program, Quarterly Report, Local Projects, Q2, 2015-2016
- Hetch Hetchy Capital Improvement Programs Quarterly Report (October 2015 to December 2015), dated February 12, 2016
- Hetchy Water Ten-Year Capital and Programmatic Plans (FY 2016-17 through 2025-26, as presented January 22, 2016
- EXHIBIT A - Water Enterprise Revenue Bonds And Other Forms Of Indebtedness FY 2016-2017 And FY 2017-2018 Capital Improvement Projects
- Updated list of bond funded projects, dated May 11, 2016
- Water Financial Projections, Qualified Independent Consultant Report, dated October 5, 2016
- SFPUC Resolution 16-0197 authorizing purchase of property at 1657 — 1663 Rollins Road in Burlingame, CA.

1. Based upon its review of the Documents and in reliance on the information presented in the Documents and in reliance upon conversations and representations of SFPUC staff, the undersigned certifies that the Projects, including prioritization, cost estimates, and scheduling, meet generally accepted utility standards.

2. Based upon its review of the Documents and in reliance on the information presented in the Documents and in reliance upon conversations and representations of SFPUC staff, the undersigned certifies that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements, including debt service on the bonds to be issued, and estimated repair and replacement costs.

3. The Documents contain information about the current status of the Projects, including estimated completion dates and the cost of completion of such Projects. Such estimated completion dates and costs of construction referenced in 3.06(c)(1)(B). All Projects being funded by Notes or Bonds are scheduled for completion by approximately 2026.

4. The cost estimates contained in the Documents, including budgeted costs of each Project, appear reasonable.

5. The Engineer has reviewed the methodology used by the Commission to develop the information presented in the Documents, and based upon such review, certifies that the methodology is reasonable, provided the methodology is consistently applied to all Projects.

While developing the Certificate, AECOM reviewed the references and data and consulted with SFPUC staff. This Certification of the CIP is based on the information provided by the SFPUC. The Engineer has made such examinations and inspections as it has deemed necessary to enable them to certify that the information presented in the Documents is reasonable. The conclusions, observations, and recommendations contained herein constitute only the opinions of AECOM. The various background documents, statements, and other information supplied by the SFPUC, its employees, and other consultants have been relied upon as being accurate in the performance of these analyses; however, no assurances are given nor warranties implied by AECOM as to the accuracy of such information. AECOM makes no certification and gives no assurances except as explicitly set forth in this document.

## **SECTION A. CERTIFICATION OF PROJECTS**

AECOM's review of the references and data for the above included a "programmatic approach" such that AECOM certifies that the Water Revenue Bonds and/or Notes are intended to be used by the SFPUC to fund the Projects. The Projects may be moved on or off the CIP list, delayed or accelerated as necessary due to scheduling, budgeting, or other constraints.

Based upon our analysis and review of the data and analysis provided by the SFPUC, AECOM certifies that the projects to be financed by the Water Revenue Bonds and/or Notes, as the case may be, including the prioritization, cost estimates and scheduling, meet generally accepted utility standards.

## **SECTION B: CERTIFICATION OF BOND REQUIREMENTS**

Bartle Wells Associates conducted a financial analysis evaluating the adequacy of revenues generated by the SFPUC Water Enterprise to meet annual operating and debt service coverage requirements. The financial analysis was developed based on updated financial data provided by SFPUC, other relevant information, independent calculations of debt service corresponding with the SFPUC's projected water financing needs, and consultations with Financial Services staff.

A 10-year financial projection for the SFPUC Water Enterprise has been developed through FY 2025-26 and is presented in Table 1 of the Water Financial Projections (WFP). As shown in Table 1, water service charges are projected to be the major source of revenues to cover debt service. Cash Flow Assumptions underlying the financial projections are detailed on page 3 of the WFP.

Based upon our analysis and review of the data and analysis provided by the SFPUC, Bartle Wells Associates certifies that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements (including, specifically, Sections 3.06 and 6.13 of the Indenture), including debt service on the bonds to be issued, and estimated repair and replacement costs.

In the opinion of Bartle Wells Associates, the projected water service charges provide revenue sufficient to:

- Meet projected costs of operations, maintenance, and routine replacement of water system facilities.
- Meet debt service obligations on existing and projected debt, including proposed Revenue Bonds and/or other financings.
- Provide sufficient revenue to finance the costs of projected water system capital improvements through FY 2025-26.
- Meet debt service coverage, additional debt test, and reserve requirements on outstanding and projected debt under the Indenture.
- Meet all other obligations of the SFPUC including charges, liens, or encumbrances on or payable from revenues of the sewer enterprise.

Schedule I hereto sets forth (i) the estimated completion date for the portion of the Project for which the series of Bonds is being issued and for any other uncompleted portion of the Project, and (ii) an estimate of the cost construction of such Project and any other uncompleted portion of the Project.

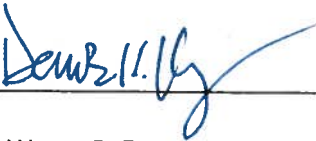
Schedule II hereto sets forth, for each of the next three fiscal years, or if any portion of the proceeds of the Bonds is to be used to finance construction, the three fiscal years following the fiscal year in which

we estimate the Project to be completed, estimates of (i) Revenues, (ii) Operation and Maintenance Costs of the Enterprise and (iii) Net Revenues.

The complete financial analysis and list of assumptions is included in the aforementioned WFP.

Dated this 28<sup>th</sup> day of June, 2017

AECOM Technical Services, Inc.

By: 

Derrick Wong, P. E.  
Assoc. Vice President



**SCHEDULE I**

**Estimated Completion Date and Cost of Construction of Project**

Project		Amount (FY 16-17 & 17-18)	Completion Date
CUW27200	Regional Water Treatment Program	10,013,000	2026+
CUW27300	Water Transmission Program	13,979,000	2026+
CUW27700	Buildings & Grounds Regional	14,743,000	2025
CUW28000	Local Water Conveyance/Distribution	105,300,000	2026+
CUW68600	Automated Water Meter Program	2,000,000	2018
CUW68800	Buildings & Ground Improvements	1,750,000	2026+
CUW28200	Systems Monitoring & Control	600,000	2026+
CUW27800	Local Water Supply – Other Recycled Water Projects/	3,500,000	2016
CUW28300	Local Tanks/Reservoir Improvements		2026+
CUW28400	Pump Station Upgrades	4,000,000	2026+
CUW30102	San Francisco Groundwater Supply	4,995,000	2017
CUW30201	SF Westside Recycled Water Project	27,806,000	2020
CUH10000	Water Infrastructure	15,100,000	2018
CUH10200	Joint Water Projects – Hetch Hetchy Facilities Upgrades	3,150,000	2026+
CUH10220	Mountain Tunnel	21,245,400	2019
CUW287-01	Buildings Structures and Improvements (Rollins Road)	9,147,000	2017

**SCHEDULE II**

**Estimates of Revenues, Operation and Maintenance Costs and Net Revenues**

**(This information is contained in the Water Financial Projections)**

**[Note: the estimates/projections need to specify whether and to what extent Revenues include available fund balances, as well as if the underlying rate increases are adopted or just assumed]**



San Francisco  
**Water**  
**Power**  
**Sewer**



# **Water Financial Projections**

## **Qualified Independent Consultant Report**

**Amended June 21, 2017**



**BARTLE WELLS ASSOCIATES**  
INDEPENDENT PUBLIC FINANCE ADVISORS





**BARTLE WELLS ASSOCIATES**  
INDEPENDENT PUBLIC FINANCE ADVISORS

1889 Alcatraz Avenue  
Berkeley, CA 94703  
T: 510-653-3399  
www.bartlewells.com

TO: San Francisco Public Utilities Commission

DATE: June 21, 2017

ATTN: Mike Brown – SFPUC Financial Services

FROM: Alex Handlers, CIPMA & Douglas Dove, CIPMA, P.E.

RE: Amended SFPUC Qualified Independent Consultant Report

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## **Background**

Bartle Wells Associates (BWA) was retained by the San Francisco Public Utilities Commission (SFPUC) to serve as a Qualified Independent Consultant and prepare a written report in support of the SFPUC's issuance of water revenue bonds. Bond proceeds will be used to fund or refinance (in the case of projects funded with commercial paper) Water System Improvement Program (WSIP) projects. As a condition for issuing parity debt, Section 3.06(c)(1)(C) of the Indenture securing the SFPUC's water revenue bonds requires an independent consultant to estimate a) revenues, b) operating and maintenance expenses, and c) net revenues of the Water Enterprise for a period lasting through three fiscal years following Fiscal Year 2019-20, the fiscal year in which the consulting engineers estimate the bond-funded projects will be completed.

## **Financial Projections**

Pursuant to this requirement, BWA developed financial projections through Fiscal Year 2022-23. The financial projections are based on data provided by the SFPUC as well as a number of independent calculations and assumptions which constitute such examination or investigation as is necessary to enable BWA to express an informed opinion as to whether the requirements of Proposition E and the Indenture have been satisfied. Based on the projections, the Water Enterprise will generate net revenues (as defined per the Indenture) that are at least 1.25 times Annual Debt Service in each fiscal year. In accordance with the requirements of Proposition E, approved by the voters of the City and County of San Francisco on November 5, 2002, BWA certifies that estimated net revenue after payment of operating and maintenance expenses will be sufficient to meet debt service coverage and other indenture or resolution requirements, including debt service on the bonds to be issued, and estimated repair and replacement costs.

## Attached Tables

The attached tables include:

- **Water Enterprise Financial Projections** – This table was developed by Bartle Wells Associates based on information provided by the SFPUC and a number of independent assumptions, and includes projections of future fund balances, revenues, operating and maintenance expenses, debt service, other non-operating expenses, net revenues, and debt service coverage.
- **Cash Flow Assumptions** – This table describes key assumptions used in developing the financial projections.
- **10-Year Water Capital Improvement Program** – This table shows projected SFPUC water system capital improvements and anticipated sources of funding and includes costs for the purchase of the Rollins Road Property
- **Estimated Bond Debt Service** – This table estimates annual debt service on future bonds per each \$100 million of project funding.
- **Projected Debt Service on Future Financings** – This table shows debt service projections for future financings needed to fund SFPUC’s capital improvement needs.
- **Outstanding Debt** – This table shows debt service due on the SFPUC’s outstanding bond issues.

The tables are based on information provided by the SFPUC as well as a number of independent calculations and assumptions. BWA takes no responsibility for the accuracy of information provided by the SFPUC, nor for any errors or omissions in information provided.

Submitted by: BARTLE WELLS ASSOCIATES



Alex Handlers, CIPMA  
Principal/Vice President

Douglas R. Dove, CIPMA, P.E.  
President

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## **SFPUC Water Financial Projections**

### **List of Tables**

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Table 1 - SFPUC Water Cash Flow Projections

Table 2 - 10-Year Water Capital Improvement Program

Table 3 - Estimated Bond Debt Service

Table 4 - Projected Bond Issues

Table 5 - Projected Debt Service on Future Financings

Table 6 - Outstanding Debt

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**Table 1 - SFPUC Water Cash Flow Projections**

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Retail Water Rate Adjustments	10.0%	7.0%	11.0%	11.0%	11.0%	5.0%	5.0%
Change in Retail Demand	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Retail Water Sales (ccf)	29,258,000	29,258,000	29,258,000	29,258,000	29,258,000	29,258,000	29,258,000
Retail Water Sales (mgd)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Growth in Wholesale Demand	-4.35%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wholesale Water Sales (ccf)	54,309,000	54,309,000	54,309,000	54,309,000	54,309,000	54,309,000	54,309,000
Wholesale Water Sales (mgd)	111.3	111.3	111.3	111.3	111.3	111.3	111.3
Wholesale Water Rate (\$/ccf)	\$4.10	\$4.31	\$4.65	\$4.98	\$5.53	\$5.75	\$5.98
Wholesale Water Rate Adjustments	9.3%	5.0%	8.0%	7.0%	11.0%	4.0%	4.0%
Wholesale Fixed Meter Charges (est.)	\$4,590,000	\$4,682,000	\$4,776,000	\$4,872,000	\$4,969,000	\$5,068,000	\$5,169,000
Interest Earnings Rate	-	-	2.5%	2.5%	2.5%	2.0%	2.0%
O&M Cost Escalation	-	-	3.0%	3.0%	3.0%	3.0%	3.0%
<b>Beginning Fund Reserves</b>	<b>\$143,500,000</b>	<b>\$152,213,000</b>	<b>\$152,782,000</b>	<b>\$145,901,000</b>	<b>\$162,296,000</b>	<b>\$206,239,000</b>	<b>\$247,969,000</b>
<b>Annual Revenues</b>							
Retail Water Charges	234,078,000	250,463,000	278,014,000	308,596,000	342,542,000	359,669,000	377,652,000
Wholesale Water Charges	222,667,000	234,072,000	252,537,000	270,459,000	300,329,000	312,277,000	324,768,000
Wholesale Meter Charges	4,590,000	4,682,000	4,776,000	4,872,000	4,969,000	5,068,000	5,169,000
Interest Income	1,794,000	1,841,000	3,820,000	3,648,000	4,057,000	4,125,000	4,959,000
Capacity Charges	1,787,000	1,948,000	1,987,000	1,907,000	1,900,000	1,500,000	1,500,000
Rental/Other Miscellaneous Income	24,243,000	24,832,000	25,657,000	26,506,000	27,380,000	31,069,000	32,001,000
BABs Interest Subsidies (Net of Sequestration)	22,201,000	22,059,000	21,905,000	21,734,000	21,550,000	21,346,000	21,019,000
<b>Total Annual Revenues</b>	<b>511,360,000</b>	<b>539,897,000</b>	<b>588,696,000</b>	<b>637,722,000</b>	<b>702,727,000</b>	<b>735,054,000</b>	<b>767,068,000</b>
<b>Debt Proceeds/Project Funding</b>	<b>250,000,000</b>	<b>658,784,000</b>	<b>138,826,000</b>	<b>377,315,000</b>	<b>409,756,000</b>	<b>85,103,000</b>	<b>193,194,000</b>
<b>Operation &amp; Maintenance Expenses</b>							
Personnel	89,673,000	91,702,000	96,197,000	99,083,000	102,055,000	105,117,000	108,271,000
Non-Personal Services	16,427,000	16,501,000	17,397,000	17,919,000	18,457,000	19,011,000	19,581,000
Materials/Supplies/Equipment	16,937,000	16,640,000	17,288,000	17,807,000	18,341,000	18,891,000	19,458,000
Light, Heat, and Power	9,045,000	9,444,000	9,728,000	10,020,000	10,321,000	10,631,000	10,950,000
Overhead (SFPUC Bureaus & City)	44,809,000	46,076,000	46,602,000	48,000,000	49,440,000	50,923,000	52,451,000
Services of Other Departments	11,881,000	11,577,000	11,335,000	11,675,000	12,025,000	12,386,000	12,758,000
Hetch Hetchy Assessment	34,600,000	32,600,000	33,578,000	34,585,000	35,623,000	36,692,000	37,793,000
Programmatic Projects (Excluding 525 GG Lease)	21,741,000	17,092,000	17,537,000	15,493,000	13,271,000	12,664,000	12,849,000
<b>Total O&amp;M Expenses</b>	<b>245,113,000</b>	<b>241,632,000</b>	<b>249,662,000</b>	<b>254,582,000</b>	<b>259,533,000</b>	<b>266,315,000</b>	<b>274,111,000</b>
<b>Annual Debt Service, Net of Capitalized Interest</b>							
Prior Outstanding Bonds	193,425,000	196,904,000	223,868,000	242,068,000	220,428,000	222,797,000	213,666,000
2016ABC Bonds	36,601,000	63,793,000	61,075,000	63,705,000	88,121,000	85,351,000	95,388,000
Projected Future Bonds	0	0	0	0	42,562,000	61,217,000	90,176,000
<b>Total Debt Service</b>	<b>230,026,000</b>	<b>260,697,000</b>	<b>284,943,000</b>	<b>305,773,000</b>	<b>351,111,000</b>	<b>369,365,000</b>	<b>399,230,000</b>
<b>Non-Operating Expenses</b>							
Regional Repairs & Replacements	18,341,000	27,830,000	51,804,000	51,804,000	11,371,000	11,377,000	11,377,000
Local Repairs & Replacements	0	0	0	0	27,600,000	37,100,000	42,100,000
525 Golden Gate Lease	9,167,000	9,169,000	9,168,000	9,168,000	9,169,000	9,167,000	9,169,000
<b>Total Other Non-Op Expenses</b>	<b>27,508,000</b>	<b>36,999,000</b>	<b>60,972,000</b>	<b>60,972,000</b>	<b>48,140,000</b>	<b>57,644,000</b>	<b>62,646,000</b>
<b>Total Expenses</b>	<b>502,647,000</b>	<b>539,328,000</b>	<b>595,577,000</b>	<b>621,327,000</b>	<b>658,784,000</b>	<b>693,324,000</b>	<b>735,987,000</b>
<b>Revenues Less Expenses</b>	<b>8,713,000</b>	<b>569,000</b>	<b>(6,881,000)</b>	<b>16,395,000</b>	<b>43,943,000</b>	<b>41,730,000</b>	<b>31,081,000</b>
<b>Ending Fund Reserves</b>	<b>152,213,000</b>	<b>152,782,000</b>	<b>145,901,000</b>	<b>162,296,000</b>	<b>206,239,000</b>	<b>247,969,000</b>	<b>279,050,000</b>
Annual Revenues	511,360,000	539,897,000	588,696,000	637,722,000	702,727,000	735,054,000	767,068,000
Operating & Maintenance Expenses	(245,113,000)	(241,632,000)	(249,662,000)	(254,582,000)	(259,533,000)	(266,315,000)	(274,111,000)
Plus Fund Reserves Appropriated for O&M	<u>10,800,000</u>	<u>1,600,000</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Net Operating Revenues	277,047,000	299,865,000	339,034,000	383,140,000	443,194,000	468,739,000	492,957,000
Plus Available Fund Reserves	<u>132,853,000</u>	<u>148,396,000</u>	<u>149,305,000</u>	<u>138,858,000</u>	<u>149,974,000</u>	<u>223,172,100</u>	<u>251,145,000</u>
Net Revenues (Funds Available for Debt)	409,900,000	448,261,000	488,339,000	521,998,000	593,168,000	691,911,100	744,102,000
Annual Debt Service	230,026,000	260,697,000	284,943,000	305,773,000	351,111,000	369,365,000	399,230,000
Debt Service Coverage, Per Indenture	1.78	1.72	1.71	1.71	1.69	1.87	1.86
Debt Service Coverage, Excluding Avail Rsrvs	1.20	1.15	1.19	1.25	1.26	1.27	1.23

SFPUC Water Financial Projections  
Cash Flow Assumptions

SFPUC Model Basis	Financial projections a) are based on SFPUC's latest capital improvement program estimates, b) assume rollover of approximately \$338.5 million until the next bond issue, b) account for Adopted Budgets for fiscal years 2016/17 and 2017/18, c) incorporate other estimates and projections as summarized below.
Retail Water Rate Adjustments	Retail water rate adjustments are based on the SFPUC's adopted rate increases through FY 2021/22 and include projected rate increases as shown thereafter.
Retail Water Sales	Retail water sales are based on projected sales for FY 2016/17 and assume water sales remain constant at this level in future years.
Wholesale Water Sales	Wholesale water sales projections based on projected sales for FY 2016/17 and assume water sales remain constant at this level in future years.
Wholesale Water Rates	Based on SFPUC wholesale water rate projections.
Wholesale Meter Charges	Estimated at \$4.5 million in FY 2015/16 escalating at the annual rate of 2%.
BABs Subsidies	BABs subsidies are accounted for as a revenue and are calculated based on a 35% federal reimbursement on interest coming due each fiscal year, adjusted to account for a 6.9% reduction in the federal reimbursement due to sequestration.
Beginning Fund Reserves	Beginning undesignated fund reserves on June 30, 2016 based on SFPUC estimates.
Retail Water Charges	Based on SFPUC revenue estimates for FY 2015/16 and FY 2016/17, and subsequently escalate to account for projected rate increases and changes in projected demand, if any.
Wholesale Water Charges	Based on the projected volume of wholesale water sales multiplied by the projected wholesale rate, plus projected wholesale customer meter charges.
Interest Income	Interest earnings starting FY 2016/17 are estimated based on the projected interest rate multiplied by beginning fund reserves for each year.
Rental/Other Miscellaneous Income	Based on SFPUC projections through 2020/21 with subsequent 3% annual cost inflation.
Operation & Maintenance Expenses	Based on SFPUC projections through FY 2017/18 and subsequently escalate at the annual rate of 3.0% thereafter.
Capital Projects	Based on SFPUC projections.
Debt Service Assumptions	Debt assumptions are shown on Table 3, which calculates debt service per \$100 million of project funding. Basic assumptions for most future issues include: a) 30-year terms, b) 5% average annual interest rate, c) debt issuance on Jan-1 with May-1 and Nov-1 payment dates, d) capitalized interest for 2.33 years, e) principal payments amortized over 28 years starting year 3, f) level annual debt service, g) no debt service reserve fund, h) assumes bonds are issued each fiscal year corresponding with annual funding needs.
Outstanding Debt Service	Outstanding debt service is based on debt service scheduled of each issue, as provided by SFPUC, and includes debt service due each fiscal year.
Projected Future Bonds	Future debt service is based on BWA projections. Note that pursuant to the Indenture, as a procedural requirement the SFPUC is required to make monthly prepayments to the trustee of 1/12th principal and 1/6th semi-annual debt service toward each upcoming bond payment. The amounts shown reflect the amount coming due each fiscal year; not the amounts procedurally required to be prepaid each fiscal year.
Other Non-Operating Expenses	Based on SFPUC projections.
Net Revenues	Pursuant to the Indenture, Net Revenues are defined as Annual Revenues (excluding interest earnings on any bond funds including the reserve fund, capitalized interest fund, and improvement fund; but including fund reserves available to pay debt service assuming the Commission determined such reserves should be "Revenues" under the Indenture) less Operation and Maintenance Expenses.
Available Fund Reserves	Based on SFPUC projections through FY 2020-21 and subsequently estimated at 90% of ending annual fund reserves.
Debt Service Coverage, Per Indenture	Coverage based on annual Net Revenues (including Available Fund Reserves) divided by Annual Debt Service.
Debt Service Coverage, Excluding Available Fund Reserves	Based on the same calculation described above, with Net Revenues reduced to exclude Available Fund Reserves.

# SFPUC Water

## Projected Revenues & Expenses (\$ Millions)

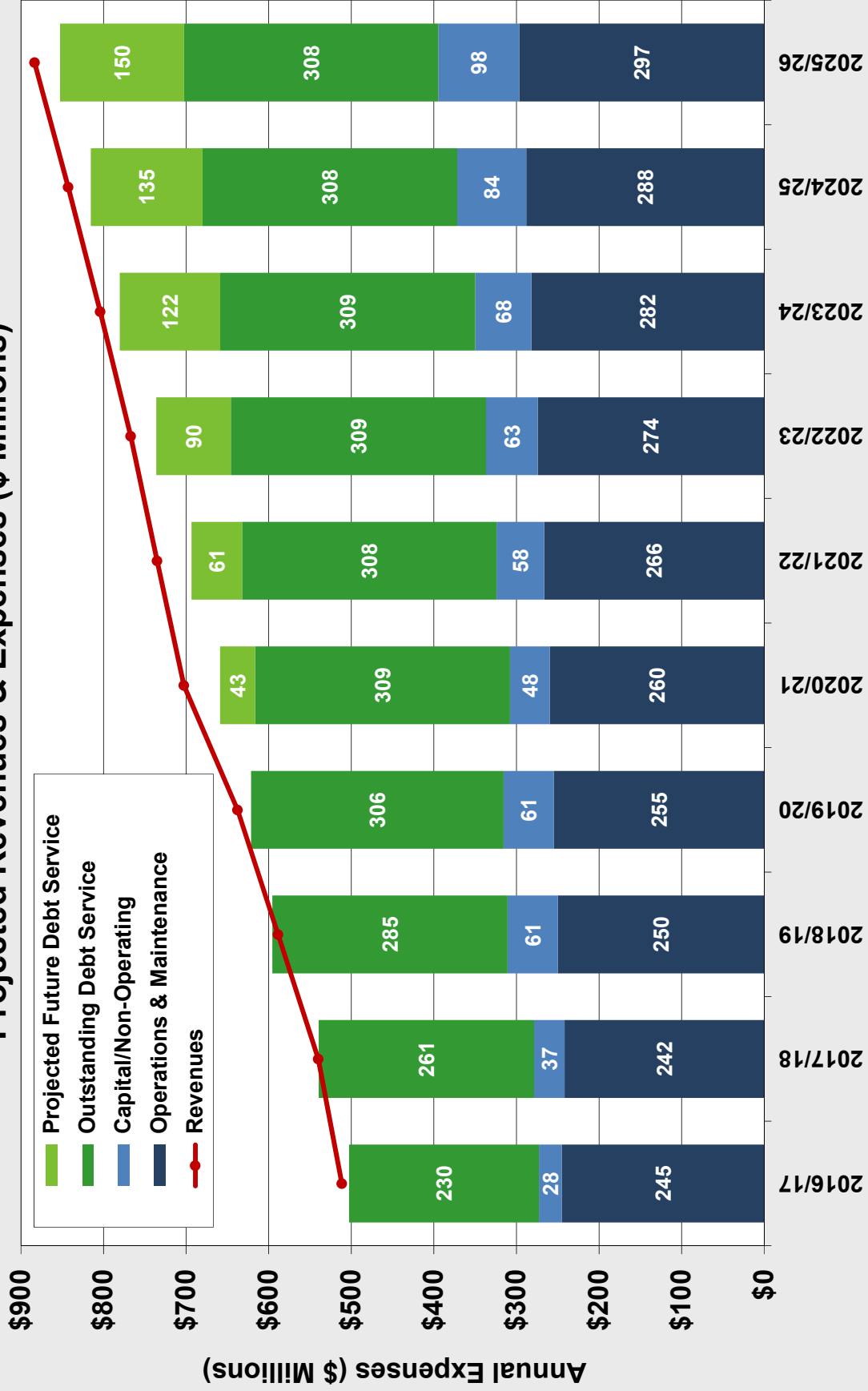




Table 3  
 SFPUC Water Enterprise  
 Estimated Bond Debt Service  
*Per \$100 Million of Project Funding*

Funding Source	Future Bonds	
Repayment Term	30 Years	
Cap I Term	2.33 Years	
Per each		
Funding Target	\$100,000,000	
<b>Assumed Issuance &amp; Payment Dates</b>		
Bond Issuance Date	Jan-1	
First Interest Payment	May-1	
Principal & Second Interest Payment	Nov-1	
<b>Total Debt Issue</b>		
	\$114,350,000	
<b>Project Funding</b>		
	\$100,000,000	
<b>Issuance Costs &amp; Reserve Requirement</b>		
Underwriter Discount	0.60%	\$686,000
Issuance Costs	Est.	300,000
Reserve Requirement		0
Capitalized Interest*		13,342,000
Rounding/Contingency		<u>22,000</u>
Total		14,350,000
<b>Financing Terms</b>		
Term (Years)		30
Interest Only (Years)		2.33
Principal Amortization (Years)		28
Est. Average Interest Rate		5.00%
<b>Annual Debt Service</b>		
Interest Only Period		5,718,000
Principal Amortization Period		7,675,000

*Financing costs and interest rates estimated for financial planning purposes.*



**Table 4**  
**SFPUC Water Enterprise**  
**Projected Bond Issues**

Debt Issuance by FY	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
<b>Debt Financing Requirements</b>									
CIP Project Funding	\$170,237,000	\$138,826,000	\$177,315,000	\$409,756,000	\$85,103,000	\$63,245,000	\$65,362,000	\$42,803,000	\$34,558,000
Prior WSP Appropriation	150,000,000	-	200,000,000	-	-	129,949,000	-	-	-
Prior Carry Forward Debt	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>320,237,000</b>	<b>138,826,000</b>	<b>377,315,000</b>	<b>409,756,000</b>	<b>85,103,000</b>	<b>193,194,000</b>	<b>65,362,000</b>	<b>42,803,000</b>	<b>34,558,000</b>
Carryover to 2017/18	338,547,000								
Revised Issuance	658,784,000								
<b>Financing Terms</b>									
CIP Project Funding	658,784,000	138,826,000	377,315,000	409,756,000	85,103,000	193,194,000	65,362,000	42,803,000	34,558,000
Total Issue Size	753,320,000	158,750,000	431,460,000	468,560,000	97,320,000	220,920,000	74,740,000	48,950,000	39,520,000
Issuance Date	Jan-1 2018	Jan-1 2019	Jan-1 2020	Jan-1 2021	Jan-1 2022	Jan-1 2023	Jan-1 2024	Jan-1 2025	Jan-1 2026
Interest Payments	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1	May-1 & Nov-1
Principal Payments (Year 3+)	Nov-1	Nov-1	Nov-1	Nov-1	Nov-1	Nov-1	Nov-1	Nov-1	Nov-1
Average Interest Rate	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Repayment Term (Years)	30	30	30	30	30	30	30	30	30
Capitalized Interest (Years)	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
<b>Debt Service per \$100M</b>									
Interest Only Period (2.33 Yrs)	5,718,000	5,718,000	5,718,000	5,718,000	5,718,000	5,718,000	5,718,000	5,718,000	5,718,000
Principal Amort Period (28 Yrs)	7,675,000	7,675,000	7,675,000	7,675,000	7,675,000	7,675,000	7,675,000	7,675,000	7,675,000
<b>Annual Debt Service</b>									
Interest Only Period	37,669,000	7,938,000	21,575,000	23,430,000	4,866,000	11,047,000	3,737,000	2,447,000	1,976,000
Principal Amort Period	50,562,000	10,655,000	28,959,000	31,449,000	6,532,000	14,828,000	5,017,000	3,285,000	2,652,000
<b>Cumulative MADS</b>	<b>74,812,000</b>	<b>85,467,000</b>	<b>114,426,000</b>	<b>145,875,000</b>	<b>152,407,000</b>	<b>167,235,000</b>	<b>172,252,000</b>	<b>175,537,000</b>	<b>178,189,000</b>

Table 5  
 SFPUC Wastewater Enterprise  
 Projected Debt Service on Future Financings

Fiscal Year Ending June 30	2018 Bonds	2019 Bonds	2020 Bonds	2021 Bonds	2022 Bonds	2023 Bonds	2024 Bonds	2025 Bonds	2026 Bonds	Total Net of Cap I
2017										0
2018	Cap I (4 mos)									0
2019	Cap I	Cap I (4 mos)								0
2020	Cap I	Cap I	Cap I (4 mos)							0
2021	42,562,000	Cap I	Cap I	Cap I (4 mos)						0
2022	50,562,000	10,655,000	Cap I	Cap I	Cap I (4 mos)					42,562,000
2023	50,562,000	10,655,000	28,959,000	31,449,000	Cap I					61,217,000
2024	50,562,000	10,655,000	28,959,000	31,449,000	Cap I	Cap I (4 mos)				90,176,000
2025	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	Cap I				121,625,000
2026	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000				135,257,000
2027	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	Cap I (4 mos)			150,085,000
2028	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	Cap I		155,102,000
2029	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	Cap I	158,387,000
2030	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2031	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2032	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2033	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2034	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2035	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2036	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2037	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2038	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2039	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2040	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2041	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2042	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2043	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2044	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2045	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2046	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2047	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2048	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2049	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	161,039,000
2050	50,562,000	10,655,000	28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	110,477,000
2051			28,959,000	31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	99,822,000
2052				31,449,000	13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	70,863,000
2053					13,632,000	14,828,000	5,017,000	3,285,000	2,652,000	39,414,000
2054						14,828,000	5,017,000	3,285,000	2,652,000	25,782,000
2055						14,828,000	5,017,000	3,285,000	2,652,000	10,954,000
2056							5,017,000	3,285,000	2,652,000	5,937,000
2057									2,652,000	2,652,000



# SAN FRANCISCO PLANNING DEPARTMENT

Certificate of City and County of San Francisco Planning Department Regarding Proposed Sale of Water Revenue Bonds and Other Forms of Indebtedness in an amount not to exceed \$274,130,430

1650 Mission St.  
Suite 400  
San Francisco,  
CA 94103-2479

I, Lisa M. Gibson, Environmental Review Officer of the Planning Department of the City and County of San Francisco (the Planning Department), hereby certify as follows:

Reception:  
**415.558.6378**

Fax:  
**415.558.6409**

Planning  
Information:  
**415.558.6377**

1. As the Environmental Review Officer (ERO) of the Planning Department, I am authorized to certify as to the compliance of the San Francisco Public Utilities Commission (SFPUC) with applicable requirements of the California Environmental Quality Act (CEQA).
2. After consultation with the SFPUC, I understand that the SFPUC proposes to sell Water Revenue Bonds and Other Forms of Indebtedness in an amount not to exceed \$274,130,430, including \$229,895,582 to finance certain improvements to the Water Enterprise of the City and County of San Francisco (the "City") and \$44,234,848 to finance certain improvements to the Water Enterprise-related infrastructure of the SFPUC's Hetch Hetchy Water and Power System (the "Bonds").
3. The improvements proposed for financing include those projects described in the following document, attached to this Certificate as Exhibit A.
4. I understand that Section 8B.124 of the City Charter grants authority to the City's Board of Supervisors to approve the issuance of indebtedness, including revenue bonds, by ordinance upon two-thirds vote of its members and under certain conditions. A draft of an ordinance relating to the Bonds is attached hereto as Exhibit B (the Ordinance).
5. I understand that one of the conditions to the Board of Supervisor's authorization of such indebtedness is the delivery of a certificate of the Planning Department regarding the additional projects to be financed.
6. The San Francisco Planning Commission certifies Environmental Impact Reports as they are completed pursuant to CEQA. In addition, the Planning Department approves Initial Study/Mitigated Negative Declarations, and the ERO approves Categorical Exemptions.
7. Based on a preliminary review of the additional Projects and discussions with the SFPUC regarding the requirements for undertaking such additional Projects, I certify that the Projects under the jurisdiction of the SFPUC to be funded with proceeds of the Bonds, as such Bonds is described in the Ordinance, (a) comply with applicable requirements of CEQA, or (b) are not considered to be projects under CEQA at this time and will undergo CEQA if and when they *are* defined. Pursuant to the provisions of Chapter 31 of the San Francisco Administrative Code, any additional Project to be financed will comply with such applicable requirements prior to any draw on the Revenue Bonds funds to finance the acquisition or construction of such facilities.

In witness whereof, the undersigned has executed this certification as of this 6<sup>th</sup> day of June, 2017.

Lisa M. Gibson  
Environmental Review Officer

**EXHIBIT A**  
**WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS**  
**FY 2016-2017 AND FY 2017-2018 CAPITAL IMPROVEMENT PROJECTS**

<b>Program</b>	<b>Project Number</b>	<b>Project Title</b>	<b>CEQA Compliance</b>
Renewal & Replacement (R&R)	CUW27200	Regional Water Treatment Program	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on December 18, 2008 for the San Joaquin Regional Water Quality Improvement Project.
Capital/R&R	CUW27300	Water Transmission Program	As the individual cathodic protection projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or MNDs.
R&R	CUW27700	Buildings & Grounds Regional	A Final Mitigated Negative Declaration (MND) was adopted by the San Francisco Planning Department December 2, 2015 for the Sunol Long Term Improvements Project.
R&R	CUW28000	Local Water Conveyance/Distribution	As the individual water main replacement and rehabilitation projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations.
Capital	CUW68600	Automated Water Meter Program	On May 31, 2011 and July 20, 2012 categorical exemption determinations were issued for the Automated Water Meter Program.
Capital	CUW68800	Buildings & Ground Improvements	Yard Improvements – As the individual projects are defined, the appropriate CEQA compliance document will be prepared. Fueling Station – A categorical exemption determination for the replacement fueling station was issued March 28, 2011. CDD Control Center – Planning and Design Phases only, not a “project” under CEQA §15378; As the project is defined, the appropriate CEQA compliance document will be prepared.
Capital	CUW28200	Systems Monitoring & Control	Planning and Design Phases only, not a “project” under CEQA §15378; As the individual projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or “not a project” determinations will be issued.

EXHIBIT A  
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS  
FY 2016-2017 AND FY 2017-2018 CAPITAL IMPROVEMENT PROJECTS

Program	Project Number	Project Title	CEQA Compliance
Capital	CUW27800/ CUW28300	Local Water Supply – Other Recycled Water Projects/ Local Tanks/Reservoir Improvements	<p>South San Francisco (SSF) Recycled Water Project – Planning and Design Phases only, not a “project” under CEQA §15378, The San Francisco Planning Department will not be the CEQA Lead Agency for the project. The SFPUC will review and confirm the adequacy of the document prepared by the CEQA Lead Agency (City of South San Francisco) and prepare responsible agency findings under CEQA § 15096.</p> <p>Menlo Country Club (MCC) Recycled Water Project - Planning and Design Phases only, not a “project” under CEQA §15378, The San Francisco Planning Department will not be the CEQA Lead Agency for the project. The SFPUC will review and confirm the adequacy of the document prepared by the CEQA Lead Agency (City of Woodside or City of Redwood City) and prepare responsible agency findings under CEQA § 15096.</p> <p>Daly City Recycled Water Expansion Project - Planning and Design Phases only, not a “project” under CEQA §15378, The San Francisco Planning Department will not be the CEQA Lead Agency for the project. The SFPUC will review and confirm the adequacy of the document (an MND is currently being prepared) prepared by the CEQA Lead Agency (City of Daly City) and prepare responsible agency findings under CEQA § 15096.</p> <p>Presidio-Marina Recycled Water Pipeline Project - Planning and Design Phases only, not a “project” under CEQA §15378.</p> <hr/> <p>College Hill Reservoir Outlet Structure Upgrade - As the project design is completed, the appropriate CEQA compliance document will be prepared; It is anticipated the project will qualify for an exemption determination.</p> <p>Merced Manor Reservoir Improvements - Planning and Design Phases only, not a “project” under CEQA §15378; As the project design is completed, the appropriate CEQA compliance document will be prepared; It is anticipated the project will qualify for an exemption determination.</p> <p>Forest Hill Tanks Water Quality Improvements - Planning and Design Phases only, not a “project” under CEQA §15378; As the project design is completed, the appropriate CEQA compliance document will be prepared; It is anticipated the project will qualify for an exemption determination.</p>

EXHIBIT A  
WATER ENTERPRISE REVENUE BONDS AND OTHER FORMS OF INDEBTEDNESS  
FY 2016-2017 AND FY 2017-2018 CAPITAL IMPROVEMENT PROJECTS

<b>Program</b>	<b>Project Number</b>	<b>Project Title</b>	<b>CEQA Compliance</b>
Capital	CUW28400	Pump Station Upgrades	As the individual projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or MNDs. McLaren Park Pump Station – Environmental review has not been initiated. Bay Bridge Pump Station – Environmental review has not been initiated.
Capital	CUW30102	San Francisco Groundwater Supply	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on December 19, 2013 for the San Francisco Groundwater Supply Project.
Capital	CUW30201	SF Westside Recycled Water Project	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on September 3, 2015 for the San Francisco Westside Recycled Water Project.
Capital	CUH10000	Water Infrastructure	A Final Environmental Impact Report (EIR) was certified by the San Francisco Planning Commission on December 18, 2008 for the San Joaquin Regional Water Quality Improvement Project. As the individual renewal and replacement projects are defined, the appropriate CEQA compliance document will be prepared.
Capital	CUH10200	Joint Water Projects – Hetch Hetchy Facilities Upgrades	As the individual projects are defined, the appropriate CEQA compliance document will be prepared; It is anticipated that the individual projects will qualify for exemption determinations or MNDs.
Capital	CUH10220	Mountain Tunnel	Mountain Tunnel Adits and Access Improvements and Emergency Restoration Plan – A categorical exemption determination was issued August 21, 2015. Mountain Tunnel Inspection and Repairs – A categorical exemption determination was issued March 15, 2016. Mountain Tunnel Bypass - Planning and Design Phases only, not a “project” under CEQA §15378; Environmental review has not been initiated.
Capital	CUW287-01	Buildings Structures and Improvements (Rollins Road)	Not a “project” under CEQA Guidelines Sections 15060(c)(2) and 15062(c)(3) and 15378 because there would be no direct physical change in the environment.